2016 UDOT RESEARCH PROBLEM STATEMENT

****** Problem statement deadline is March 14, 2016. Submit statements to Tom Hales at tahales@utah.gov. ******

Title: Traffic Impact Analysis of Downtown SLC Streetcar Deployment **No. (office use):** 16.06.08

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UDOT Champion (suggested): TBA

Select One Subject Area

- ☐ Materials/Pavements
- ☐ Maintenance
- ☐ Traffic Mgmt/Safety
- ☐ Preconstruction
- ☐ Planning
- ☒ Public Transportation

1. Describe the problem to be addressed.

The use of public transportation systems is on the rise in the Salt Lake Valley. Over the past several years, we have witnessed an expansion in the deployment of semi-rapid transit modes (LRT and BRT), rapid modes (commuter rail), as well as the (re)introduction of streetcar (the S line). UTA, Salt Lake City (SLC) and Redevelopment Agency (RDA) have been proposing alternatives for a streetcar circulatory system in Downtown SLC that would "enhance and accelerate walkable, transit-oriented redevelopment in the city's downtown core" (Wasatch Choice for 2040). The alternative alignments along 200 S and 400 W have been established and proposed to be implemented in two phases (short-term and mid-term). These alignments will intersect with several major intersections in the downtown area that carry high automobile traffic volumes. This study proposes to perform a traffic impact analysis for the streetcar alternatives that will look into the performance of the streetcar line and its impacts on automobile traffic along its corridors and at major intersections.

2. Explain why this research is important.

The proposed streetcar line will intersect with major east-west and north-south corridors in the Downtown SLC area. Considering the performance of streetcars, some operational impacts on other traffic are imminent. Certain priority may also be provided to streetcars, which may also lead to a decrease in automobile LOS. This research will look into the operational performance and impacts of the streetcar line, as well as provide insights into potential strategies that may minimize the impacts on automobile and non-motorized traffic, while at the same time improving the streetcar performance. The research proposes to create microsimulation scenarios of the proposed streetcar network given in Figure 1 that will be used for traffic impact analysis.

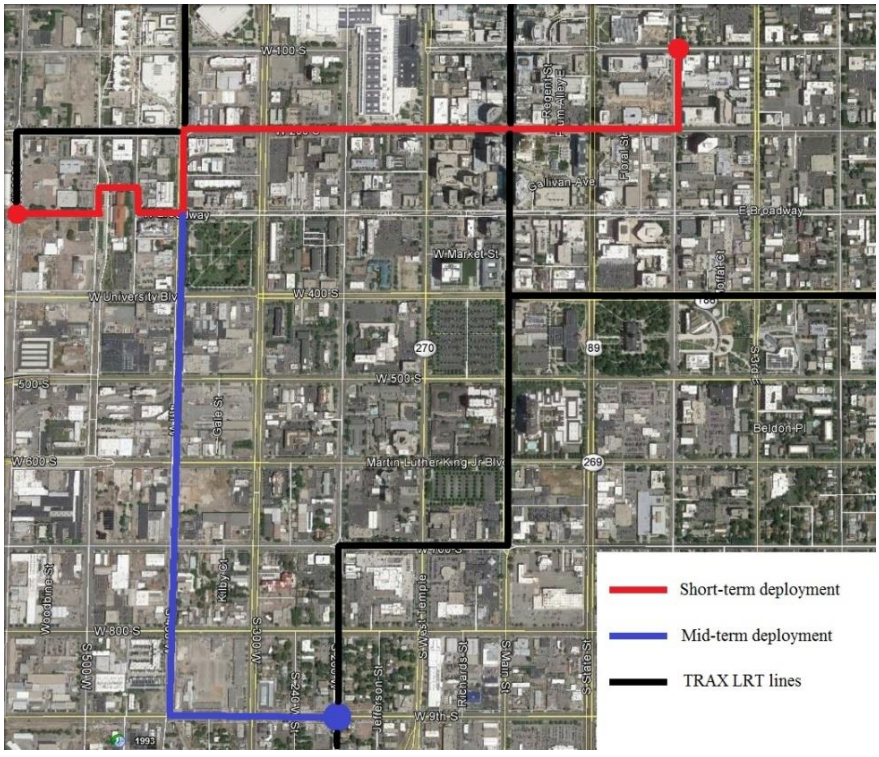

Figure 1: Downtown SLC Streetcar Alternatives and Deployment

3. List the research objective(s):

1. Review current state of art and practice in streetcar deployment and preferential treatments
2. Collect traffic data along selected routes of the downtown streetcar alternatives (intersection counts, travel times, delays, transit data etc.)
3. Develop, calibrate and validate base microsimulation models in VISSIM
4. Develop streetcar simulation scenarios for the design year
5. Perform streetcar operation and traffic impact analysis, including potential strategies for improving the performance of all modes
6. Report findings

4. List the major tasks:

1. Literature review of streetcar deployments and preferential treatments
2. Field data collection and analysis
3. Development of base microsimulation models
4. Development of microsimulation models for streetcar scenarios, including models with potential strategies for improvement
5. Analysis of streetcar performance and traffic impact analysis

5. List the expected results:

1. Analysis of current and future traffic and transit conditions
2. Microsimulation models of base conditions and streetcar scenarios
3. Potential strategies for improvement of operations
4. Transit operational and traffic impact analysis
5. Final report with descriptions and results

6. Describe how this research will be implemented.

This research will conduct a streetcar operational analysis, perform traffic impact analysis of the proposed Downtown SLC streetcar alternatives, identify potential problems along certain corridors/intersections and identify potential strategies for improvements. The study will help UTA, UDOT and SLC to better understand the effects of the streetcar deployment in the downtown area. It will also provide ready microsimulation models for further scenario development and assessment.

The University of Utah will apply for additional funds from the Mountain Plains Consortium (MPC), a University Transportation Center, and if the funds are approved, the researchers will work with the UDOT/UTA TAC to develop an additional scope that would supplement the work presented in this proposal.

7. Requested from UDOT: $60,000 **Other/Matching Funds:** $TBA **Total Cost:** $TBA
(or UTA for Public Transportation)

8. Outline the proposed schedule, including start and major event dates.

The proposed project duration is twelve months, as follows:
Summer 2016 – Summer 2017

Project phases:
Phase 1: Literature review and data collection
Phase 2: Data analysis and base model development
Phase 3: Streetcar scenarios development with strategies for improvement
Phase 4: Final analysis and report